

IN THE CLAIMS

Claims 1-34 (canceled)

35. (previously presented) A process comprising coating a surface of a metallic object with an aqueous, acidic composition to form a coated metal, wherein said aqueous, acidic composition comprises:

8 to 50 g/l of phosphate, calculated as PO_4 ,

0.5 to 30 g/l of zinc ions,

0 to 5 g/l of manganese ions,

0 to 8 g/l of calcium ions,

0 to 5 g/l of magnesium ions,

wherein at least 0.1 g/l of calcium or/and magnesium ions are present,

0.1 to 5 g/l of nitroguanidine,

0 to 2 g/L NO_3 ,

0 to < 0.8 g/L NO_2 ,

0.1 to 10 g/l in total of at least one of chlorate or peroxide ions,

in total 0 to 16 g/l of complex fluoride (~~MeF_3 or/and MeF_6~~) of the formula MeF_4 ,

MeF_5 , or both, wherein Me is selected from the group consisting of ~~Me = B,~~ Si, Ti, Hf and Zr,

~~or/and Zr and~~

0 to 5 g/l of fluoride ~~ions, ions~~

wherein the total content of complex fluoride and fluoride ions is in the range from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1; and cold forming the coated metal.

36. (previously presented) A process according to claim 35, wherein the composition comprises not more than 1 g/l of nitrate.

37. (previously presented) A process according to claim 35, wherein the composition comprises not more than 0.5 g/l of nitrite.

38. (previously presented) A process according to claim 35, wherein the composition comprises complex fluoride or/and fluoride ions to magnesium ions in a ratio of (MeF_4 , MeF_6 or/and F^-) : Mg in the range from 0.1 : 1 to 10 : 1.

39. (previously presented) A process according to claim 35, wherein the composition comprises complex fluoride or/and fluoride ions to calcium ions in a ratio of (MeF_4 , MeF_6 or/and F^-) : Ca in the range from 0.1 : 1 to 10 : 1.

40. (previously presented) A process according to claim 35, wherein the composition further comprises up to 2 g/l nickel ions.

41. (previously presented) A process according to claim 35, wherein the composition comprises chloride ions in the range up to 5 g/l.

42. (previously presented) A process according to claim 35, wherein the composition further comprises up to 2 g/l sulfate ions.

43. (previously presented) A process according to claim 35, wherein the composition comprises fluoroborate.

44. (previously presented) A process according to claim 24, wherein the composition comprises from 0.1 to 5 g/l BF_4 .

45. (previously presented) A process according to claim 24, wherein the composition comprises from 0.2 to 3 g/l BF_4 .

46. (previously presented) A process according to claim 35, wherein the pH of the composition is maintained in the range from 0.1 to 4.

47. (previously presented) A process according to claim 35, wherein a phosphate layer which has at least one of a layer thickness in the range from 0.02 to 15 μm or a layer weight in the range from 0.5 to 25 g/m^2 is formed on said surface.

48. (previously presented). A process according to claim 35, wherein a phosphate layer which has an average edge length of the phosphate crystals of less than 20 μm or even of less than 10 μm and at the same time has a layer thickness with a layer weight in the range of 1.5 to 18 g/m^2 is formed on the surface.

49. (previously presented) A process according to claim 48, wherein the layer weight is from 2 to 15 g/m^2 .

50. (previously presented) A process according to claim 35, wherein after the formation of the phosphate layer at least one layer comprising lubricant is applied.

51. (previously presented) A process for coating surfaces of metallic objects with a phosphating solution to form a coated metal, wherein the ratio of the pickling erosion on the metallic surface, measured in g/m^2 , to the layer weight of the phosphate layer, measured in g/m^2 , lies at values below 75% and wherein the ratio of free acid to total acid of said solution is from 0.25:1 to 0.11 to 1, and coldforming the coated metal.

52. (currently amended) An aqueous phosphating solution comprising:

8 to 100 g/l of phosphate, calculated as PO_4 ,

0.5 to 60 g/l of zinc ions,

0 to 10 g/l of manganese ions,

0 to 16 g/l of calcium ions,

0 to 10 g/l of magnesium ions,

wherein at least 0.1 g/l of at least one of calcium or magnesium ions are present,

0.05 to 10 g/l of nitroguanidine,

0 to 2 g/l of nitrate,

0.1 to 10 g/l in total of chlorate or/and peroxide ions,

in total 0 to 16 g/l of complex fluoride (~~MeF4 or/and MeF6~~) of the formula MeF_4 ,

MeF_6 , or both, wherein Me is selected from the group consisting of Me = B, Si, Ti, Hf and Zr,

or/and Zr and

0 to 5 g/l of fluoride ions, ions

wherein the total content of complex fluoride and fluoride ions is in the range from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1.

53. (previously presented) A metallic object coated produced by the process of claim 35 that is coldformed.

54. (currently amended) A process comprising coating a surface of a metallic object with an aqueous, acidic composition to form a coated metal, wherein the aqueous, acidic, composition consists essentially of:

8 to 50 g/l of phosphate, calculated as PO_4 ,

0.5 to 30 g/l of zinc ions,

0 to 5 g/l of manganese ions,

0 to 8 g/l of calcium ions,

0 to 5 g/l of magnesium ions,

wherein at least 0.1 g/l of calcium or/and magnesium ions are present,

0.1 to 5 g/l of nitroguanidine,

0.1 to 10 g/l in total of chlorate or/and peroxide ions,

in total 0 to 16 g/l of complex fluoride (MeF_4 -or/and MeF_6) of the formula MeF_4 ,

MeF_6 , or both, wherein Me is selected from the group consisting of Me = B, Si, Ti, Hf and Zr, or/and Zr and

0 to 5 g/l of fluoride ions, ions

wherein the total content of complex fluoride and fluoride ions is in the range from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1, and coldforming the coated metal.

55. (currently amended) A process comprising coating a surface of a metallic object with an aqueous, acidic composition to form a coated metal, wherein the aqueous, acidic composition consists of:

8 to 50 g/l of phosphate, calculated as PO_4 ,

0.5 to 30 g/l of zinc ions,

0 to 5 g/l of manganese ions,

0 to 8 g/l of calcium ions,

0 to 5 g/l of magnesium ions,

wherein at least 0.1 g/l of calcium or/and magnesium ions are present,

0.1 to 5 g/l of nitroguanidine,

0.1 to 10 g/l in total of chlorate or/and peroxide ions,

in total 0 to 16 g/l of complex fluoride (~~MeF_4 or/and MeF_6~~) of the formula MeF_4 , MeF_6 , or both, wherein Me is selected from the group consisting of ~~Me = B, Si, Ti, Hf and Zr~~ or/and Zr and

0 to 5 g/l of fluoride ions, ions

wherein the total content of complex fluoride and fluoride ions is in the range from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1.

56. (currently amended) An aqueous phosphating solution consisting essentially of:

8 to 100 g/l of phosphate, calculated as PO_4 ,

0.5 to 60 g/l of zinc ions,

0 to 10 g/l of manganese ions,

0 to 16 g/l of calcium ions,

0 to 10 g/l of magnesium ions,

wherein at least 0.1 g/l of calcium or/and magnesium ions are present,

0.05 to 10 g/l of nitroguanidine,

0 to 2 g/l of nitrate,

0.1 to 10 g/l in total of chlorate or ~~or/and~~ peroxide ions or both;

in total 0 to 16 g/l of complex fluoride (~~MeF₄ or/and MeF₆~~) of the formula MeF₃,

MeF₆, or both, wherein Me is selected from the group consisting of Me—B, Si, Ti, Hf and Zr,

or/and Zr and

0 to 5 g/l of fluoride ~~ions, ions~~

wherein the total content of complex fluoride and fluoride ions is in the range

from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1.

57. (currently amended) An aqueous phosphating solution consisting of:

8 to 100 g/l of phosphate, calculated as PO₄,

0.5 to 60 g/l of zinc ions,

0 to 10 g/l of manganese ions,

0 to 16 g/l of calcium ions,

0 to 10 g/l of magnesium ions,

wherein at least 0.1 g/l of calcium or/and magnesium ions are present,

0.05 to 10 g/l of nitroguanidine,

0 to 2 g/l of nitrate,

0.1 to 10 g/l in total of chlorate ~~or~~ ~~or/and~~ peroxide ions, or both;

in total 0 to 16 g/l of complex fluoride (~~MeF4 or/and MeF6~~) of the formula MeF_3 , MeF_5 , or both, wherein Me is selected from the group consisting of Me = B, Si, Ti, Hf and Zr,
~~or/and Zr and~~

0 to 5 g/l of fluoride ions, ~~ions~~

wherein the total content of complex fluoride and fluoride ions is in the range from 0.1 to 18 g/l and wherein the ratio of free acid to total acid is from 0.25:1 to 0.11 to 1.